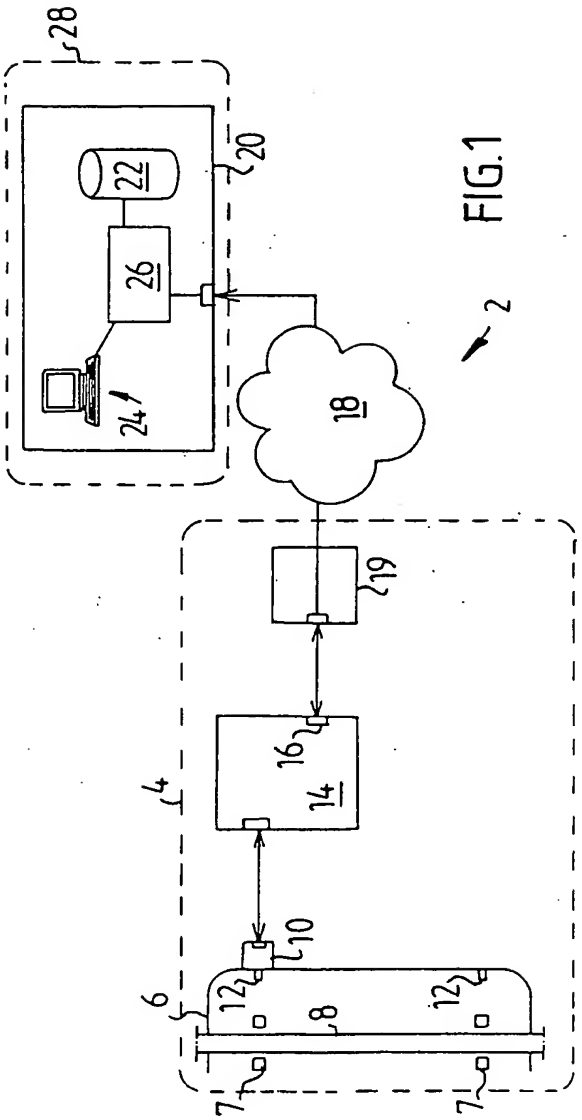
28
22
20
26
24
18
2
19
16
14
4
10
6
12
8
12
7
7

FIG.1

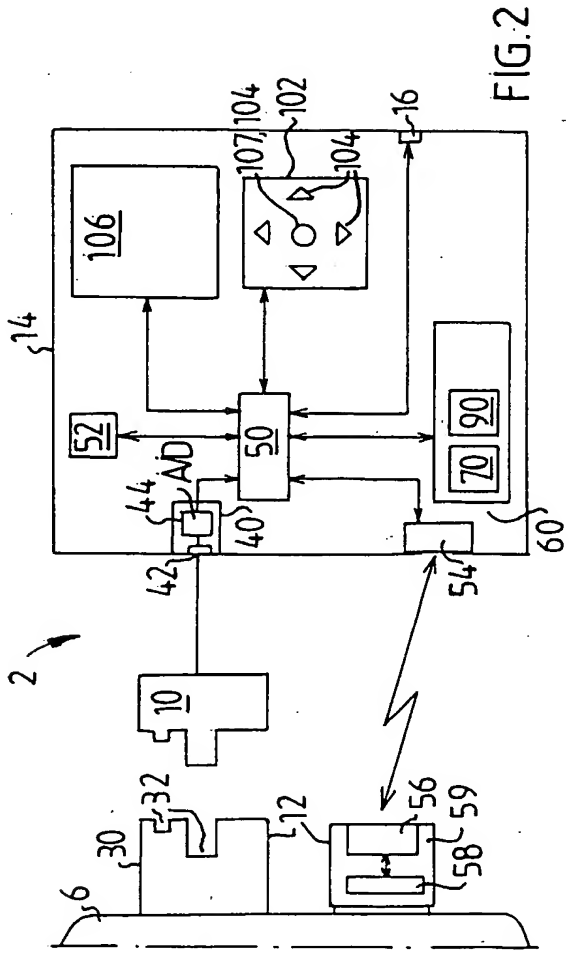
104
102
16
107
104
106
14
52
50
AD
44
40
70
90
60
42
54
2
10
32
56
59
30
12
58
6

FIG.2

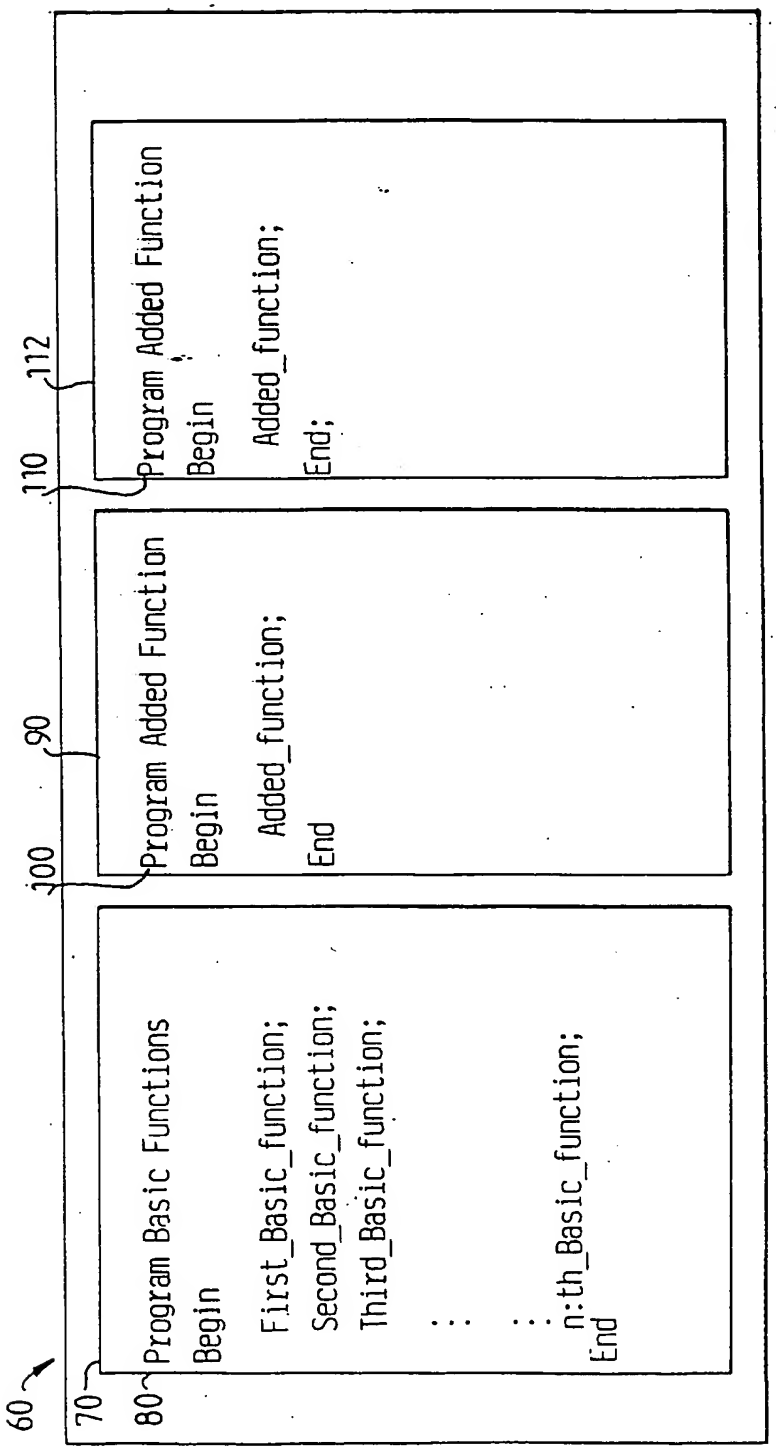
60
70
80
Program Basic Functions
Begin
First_Basic_function;
Second_Basic_function;
Third_Basic_function;
n:th_Basic_function;
End
100
90
Program Added Function
Begin
Added_function;
End
110
112
Program Added Function
Begin
Added_function;
End;

FIG.3

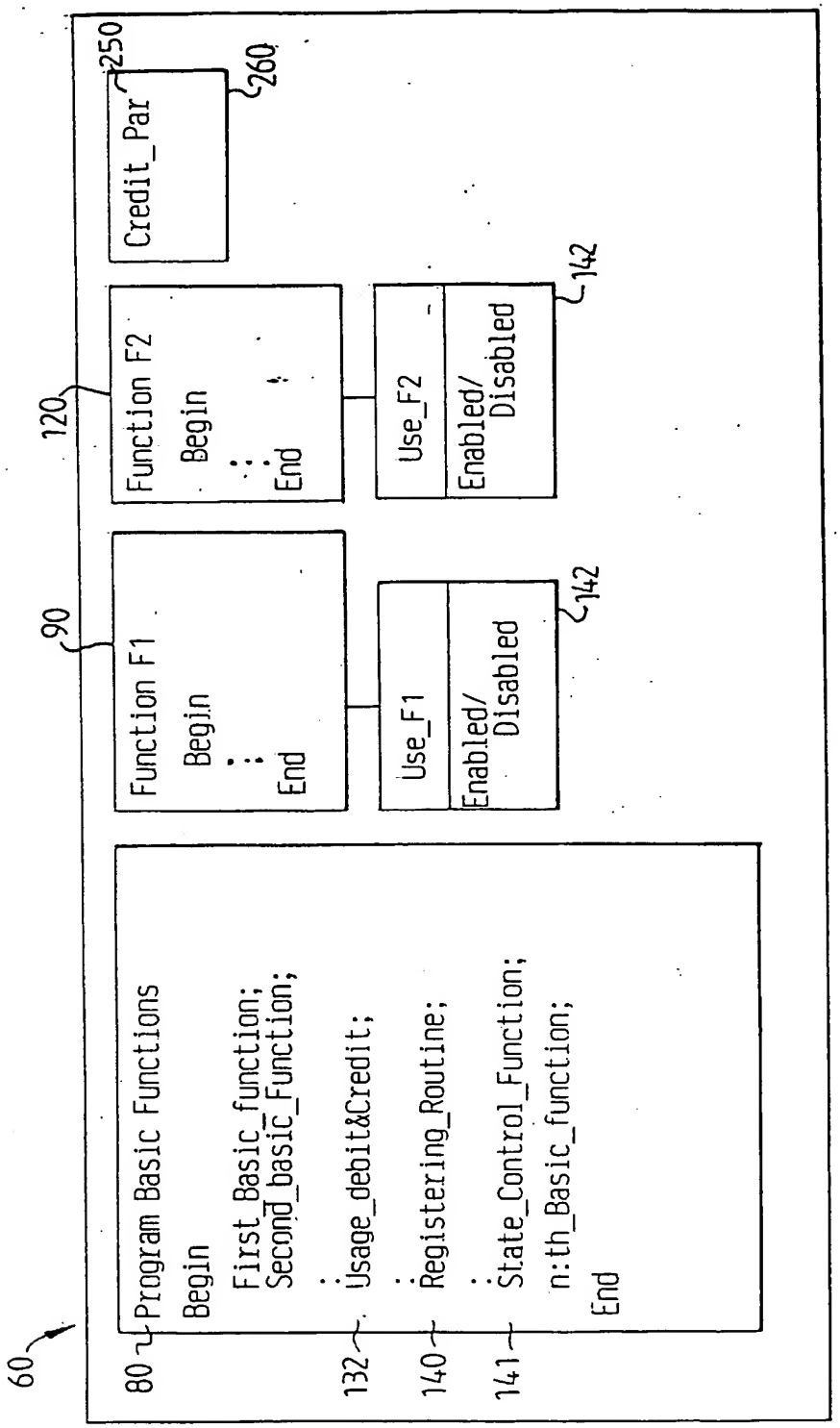
60
80
Program Basic Functions
Begin
First_Basic_function;
Second_basic_Function;
132
Usage_debit&Credit;
140
Registering_Routine;
141
State_Control_Function;
n:th_Basic_function;
End
90
Function F1
Begin
End
Use_F1
Enabled/
Disabled
142
120
Function F2
Begin
End
Use_F2
Enabled/
Disabled
142
250
Credit_Par
260

FIG. 4

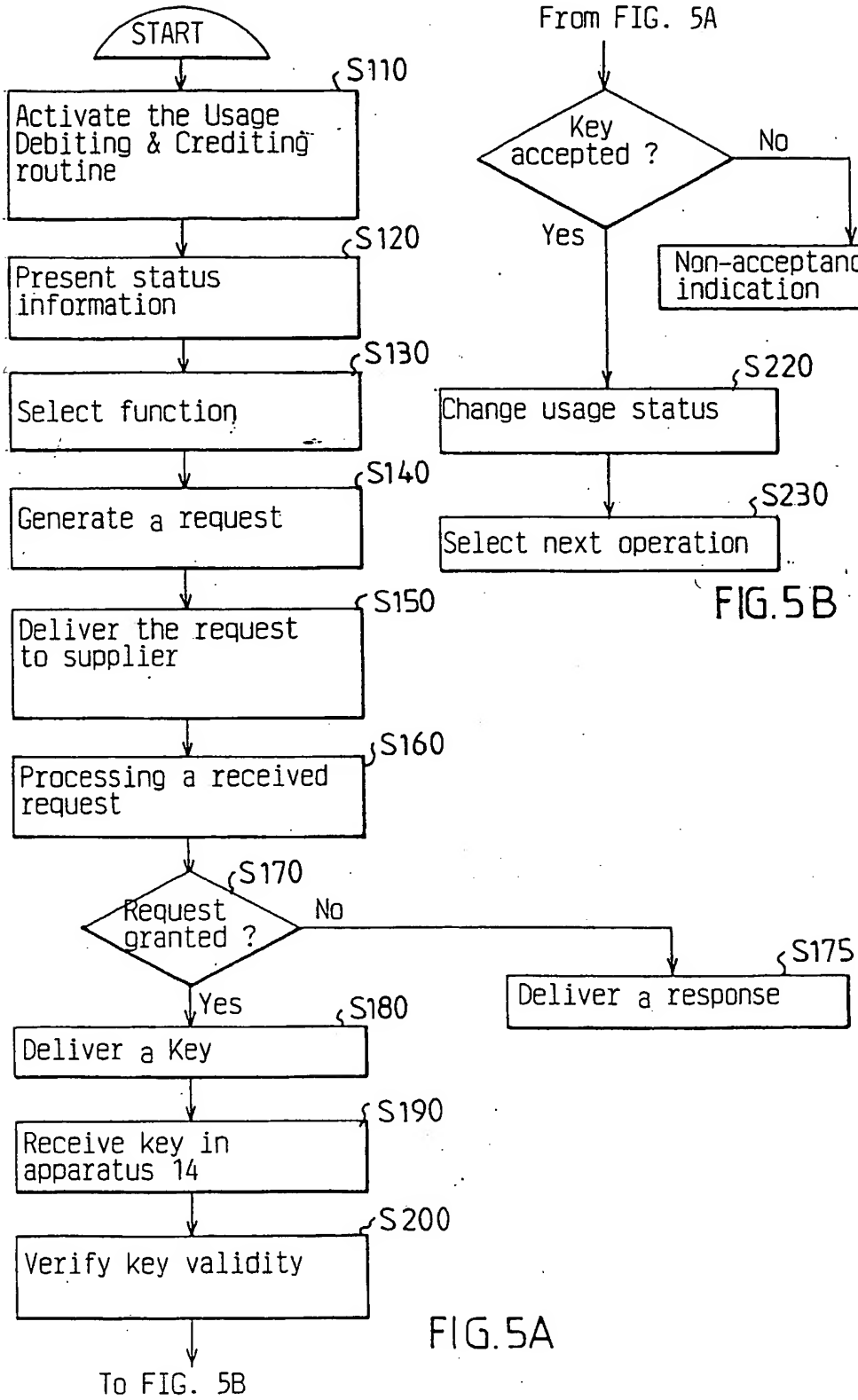
START
S110
Activate the Usage Debiting & Crediting routine
S120
Present status information
S130
Select function
S140
Generate a request
S150
Deliver the request to supplier
S160
Processing a received request
S170
Request granted ?
No
S175
Deliver a response
Yes
S180
Deliver a Key
S190
Receive key in apparatus 14
S200
Verify key validity
To FIG. 5B

FIG.5A

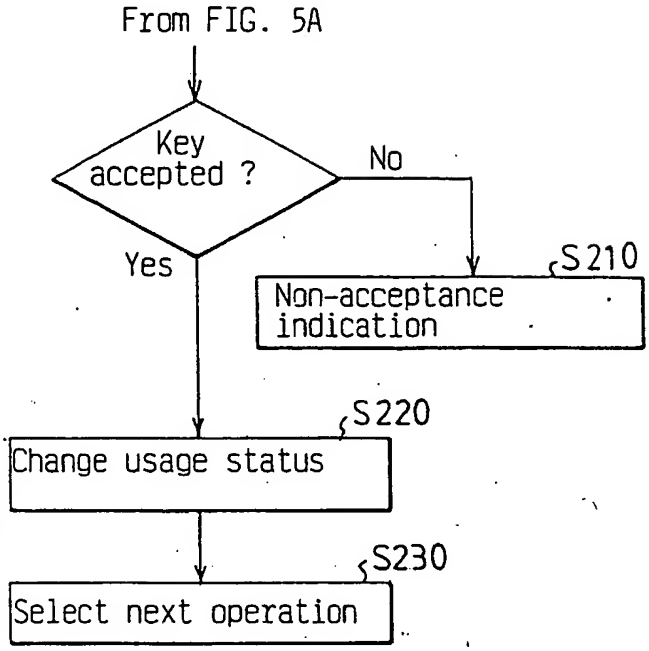
From FIG. 5A
Key accepted ?
No
Yes
S210
Non-acceptance indication
S220
Change usage status
S230
Select next operation

FIG.5B

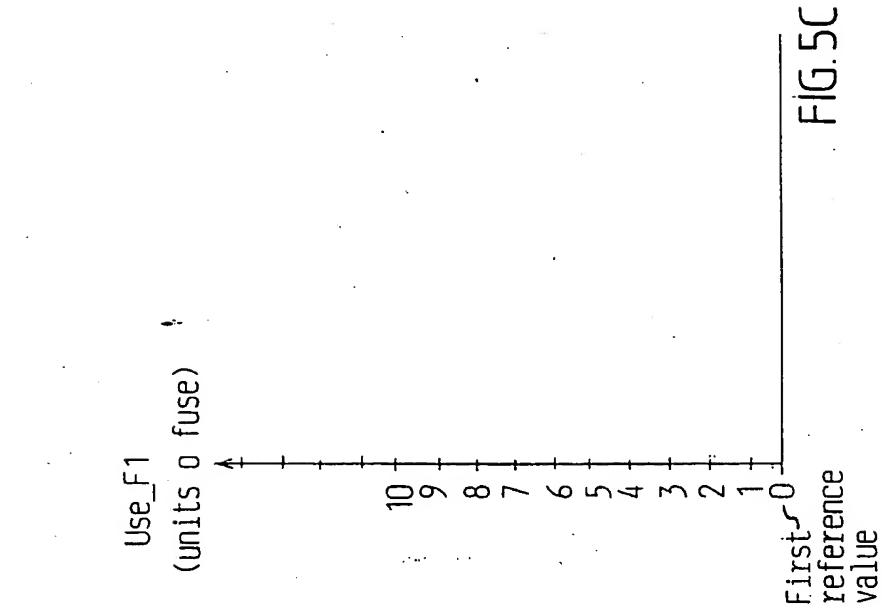
Use_F1
(units o fuse)
10
9
8
7
6
5
4
3
2
1
0
First reference value

FIG.5C

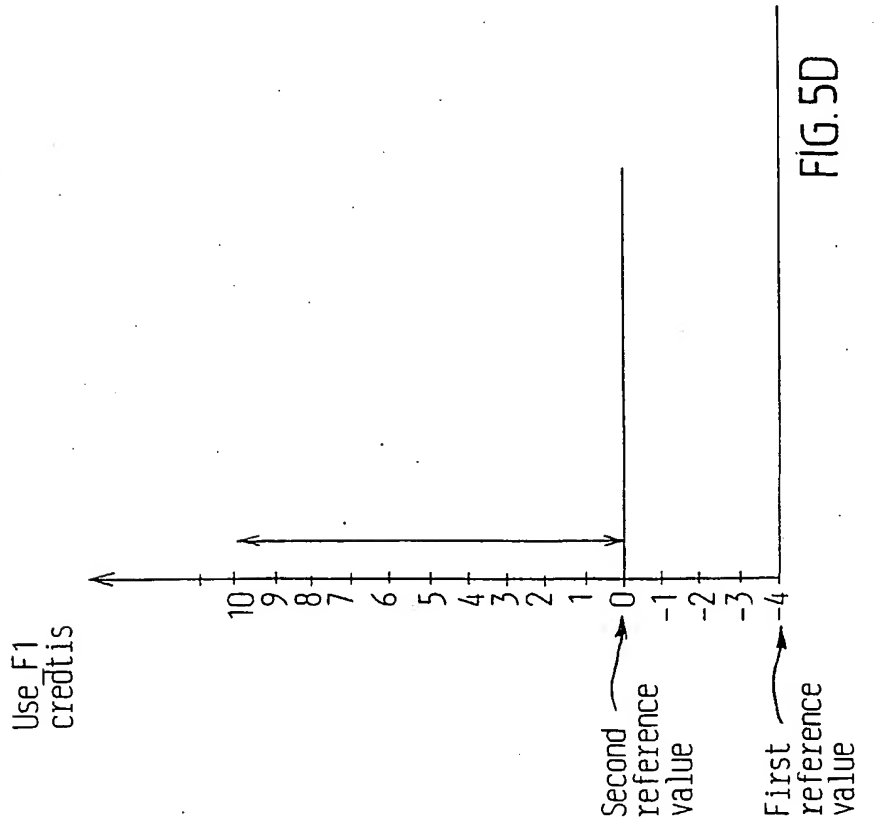
Use_F1
credtis
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
Second reference value
First reference value

FIG.5D

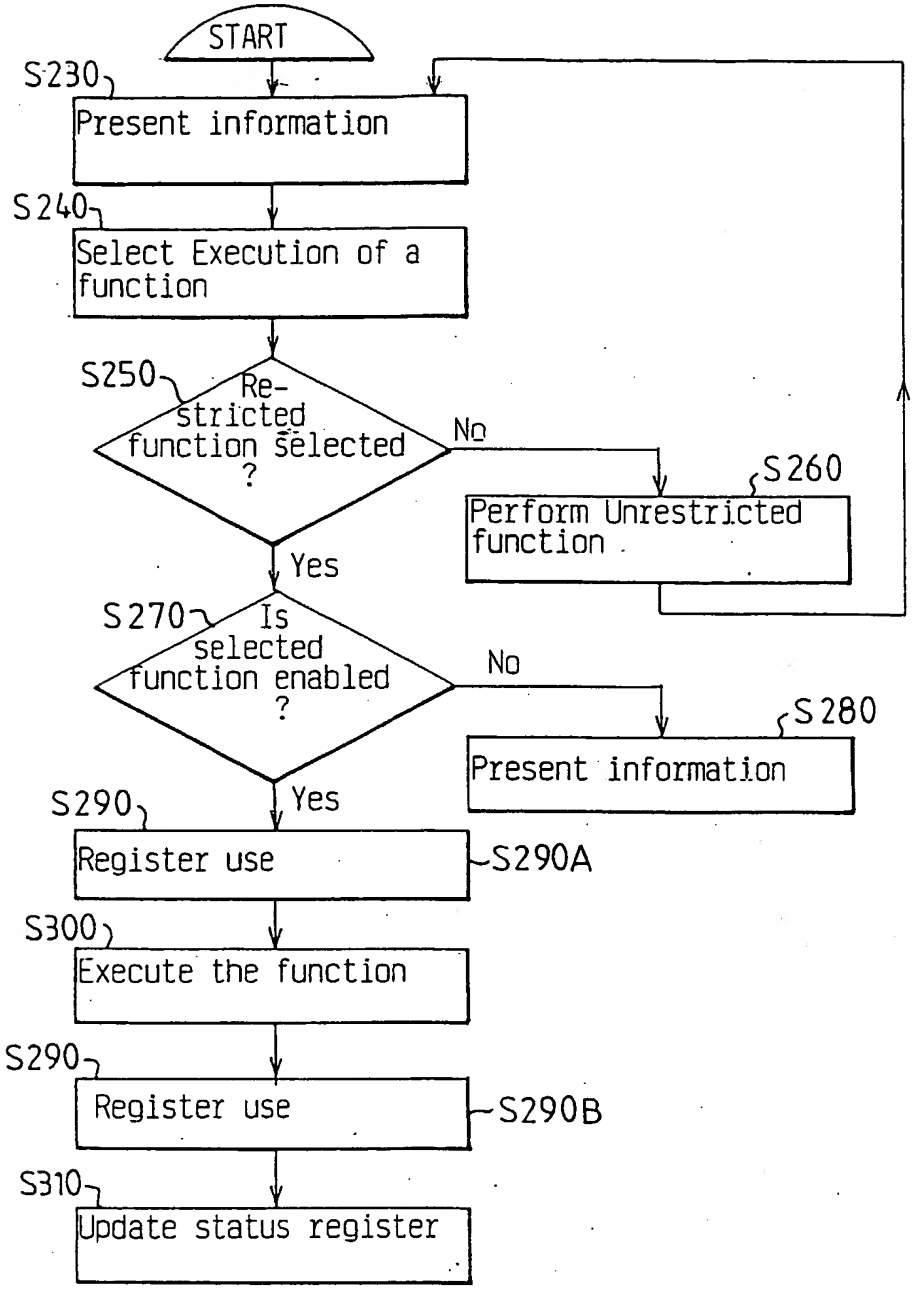
START
S230
Present information
S240
Select Execution of a function
S250
Re-stricted function selected ?
No
S260
Perform Unrestricted function
Yes
S270
Is selected function enabled ?
No
S280
Present information
Yes
S290
Register use
S290A
S300
Execute the function
S290
Register use
S290B
S310
Update status register

FIG.6

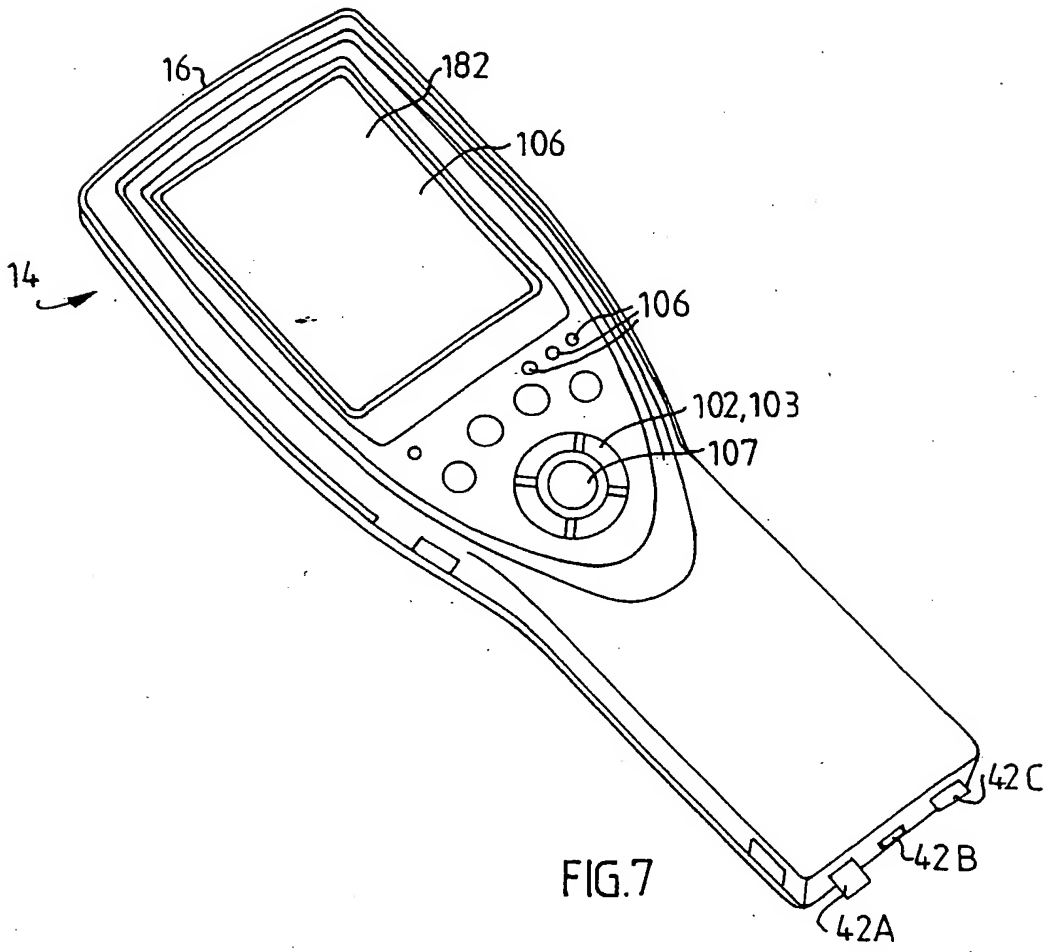

FIG.7

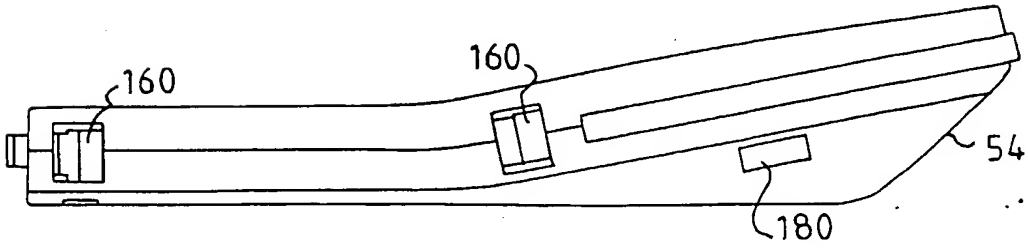

FIG. 8

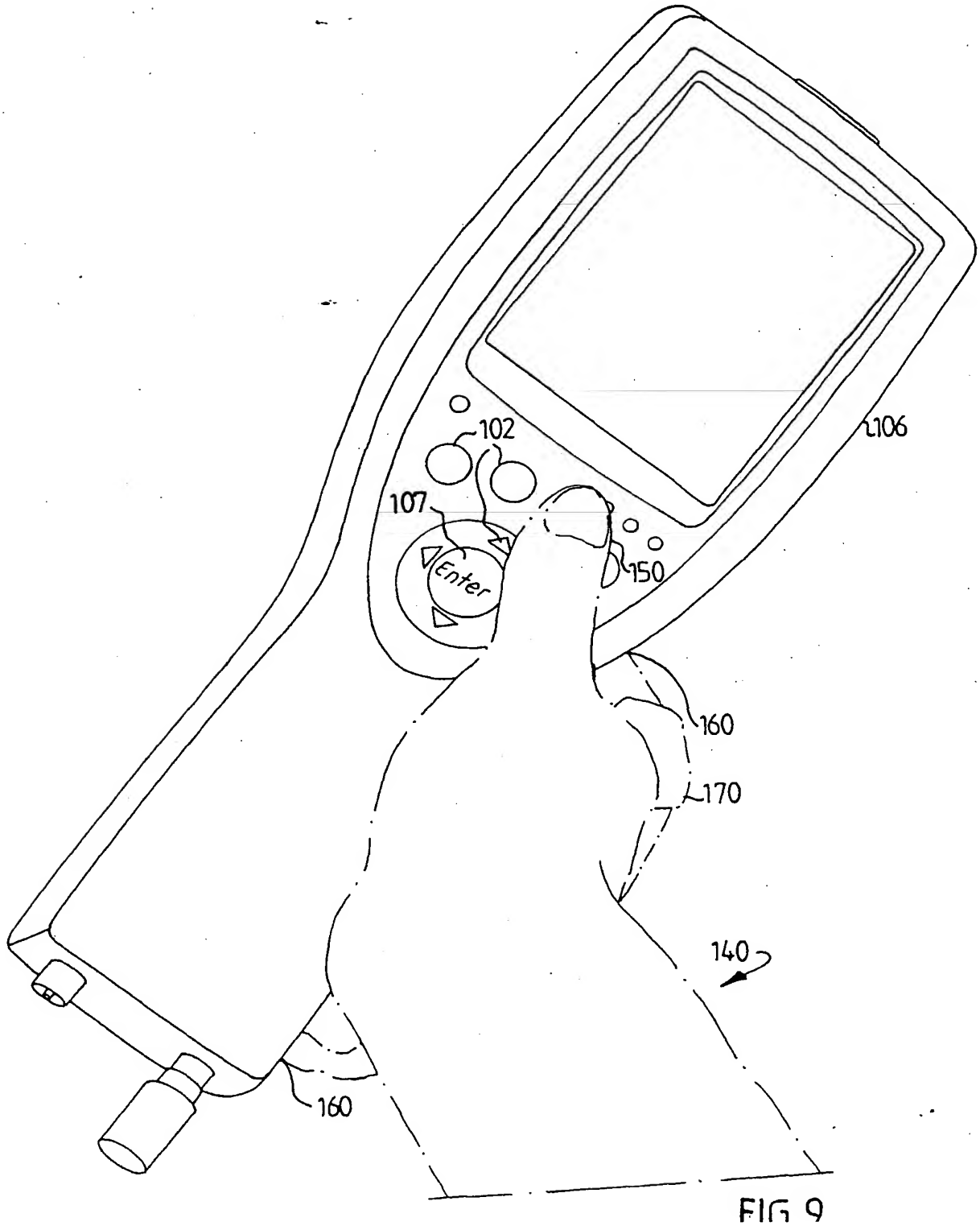

FIG 9

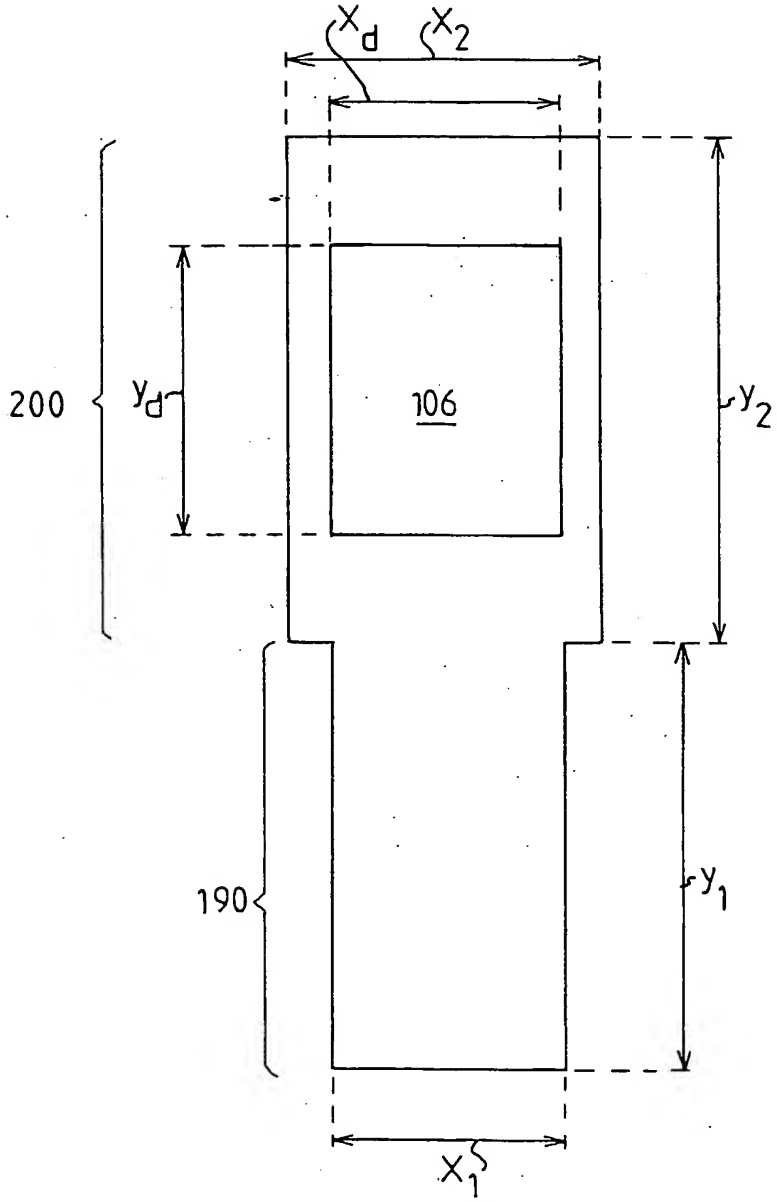

FIG.10

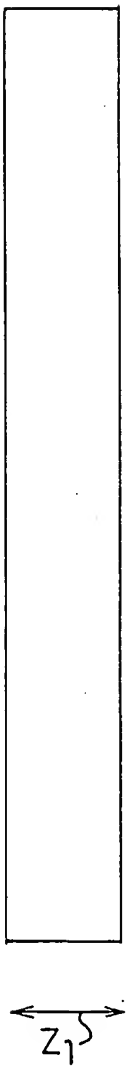

FIG.11

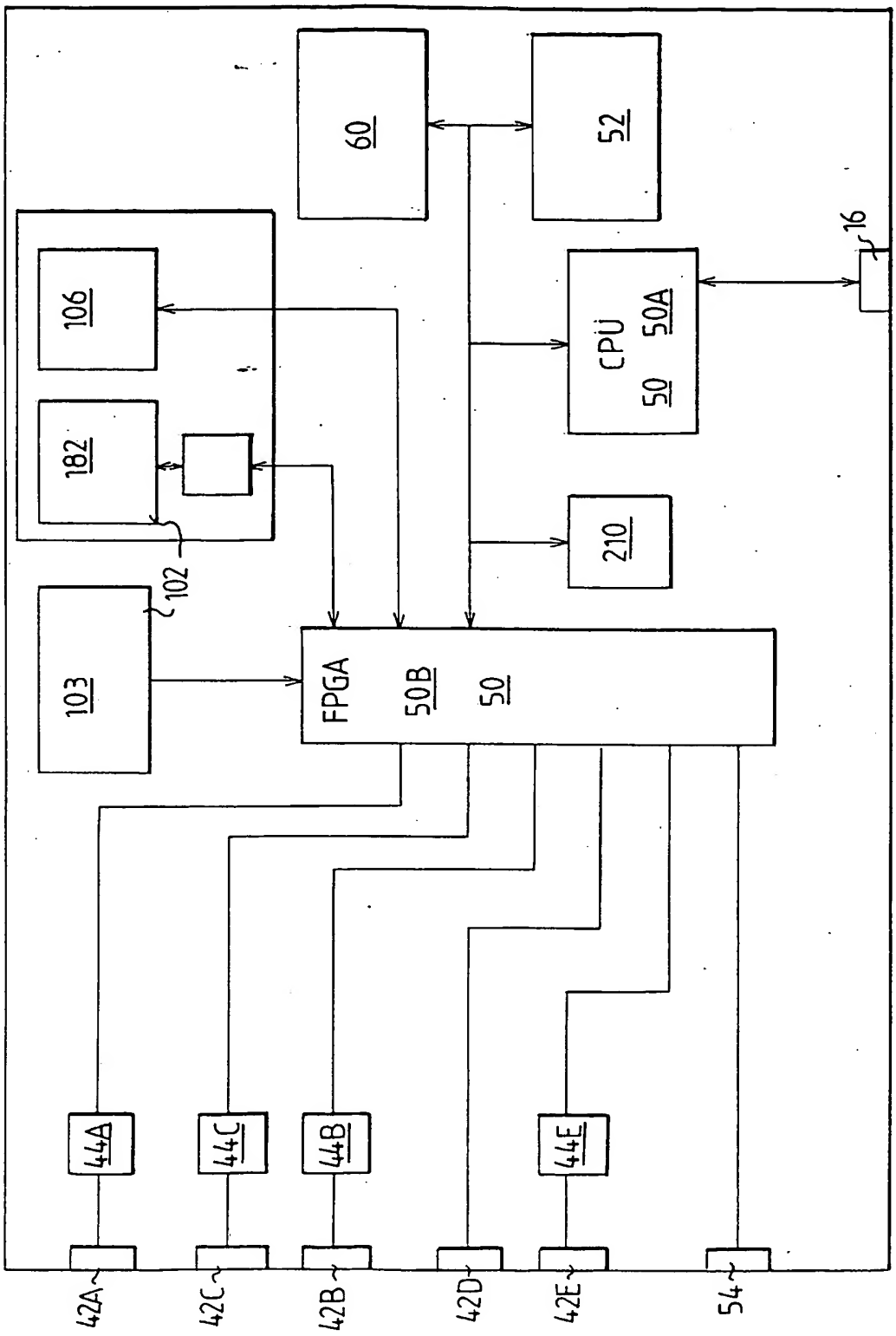
60
52
16
106
CPU
50A
50
182
210
102
103
FPGA
50B
50
14
44A
44C
44B
44E
42A
42C
42B
42D
42E
54

FIG. 12

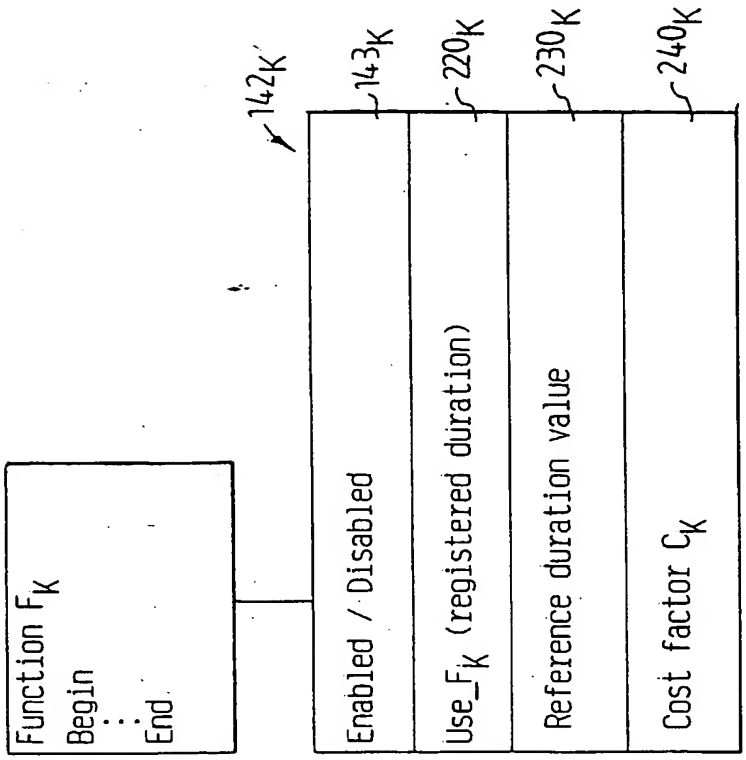

FIG.13B

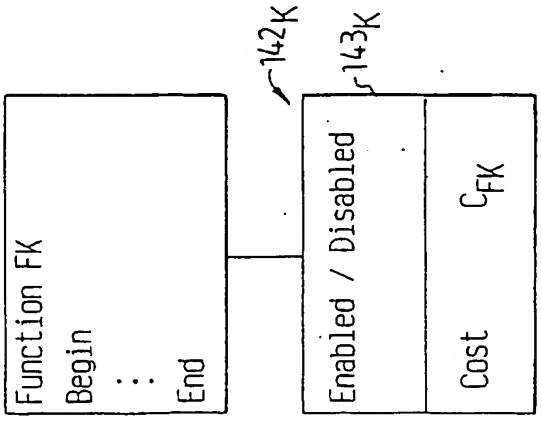

FIG.13A

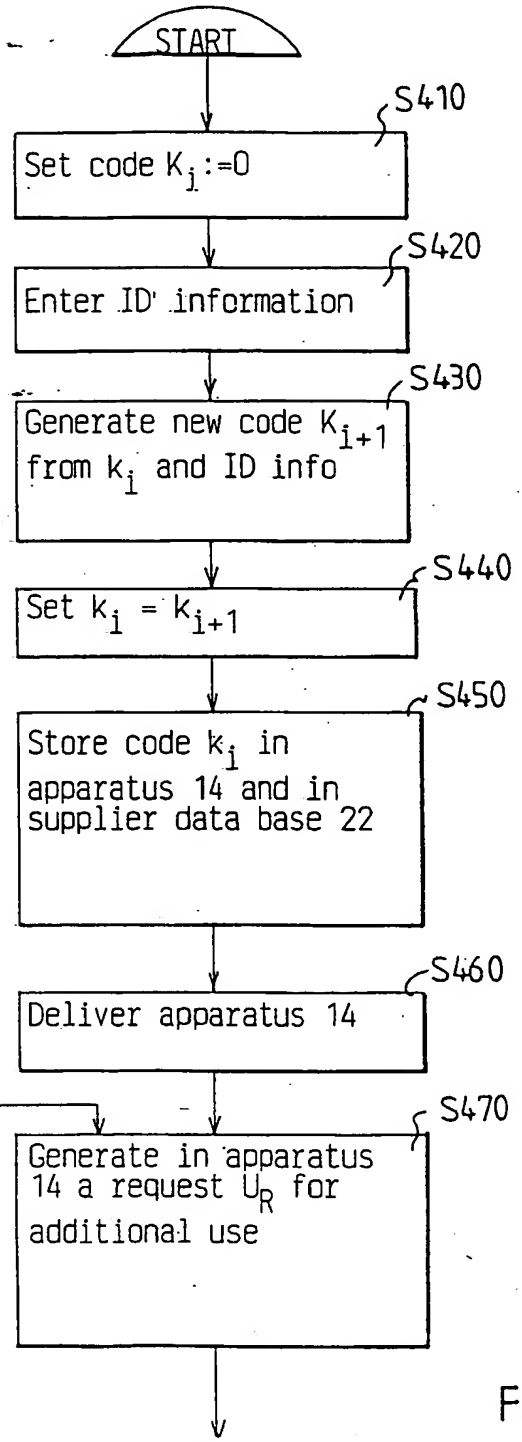

FIG.14A

From FIG. 14B

To FIG. 14B

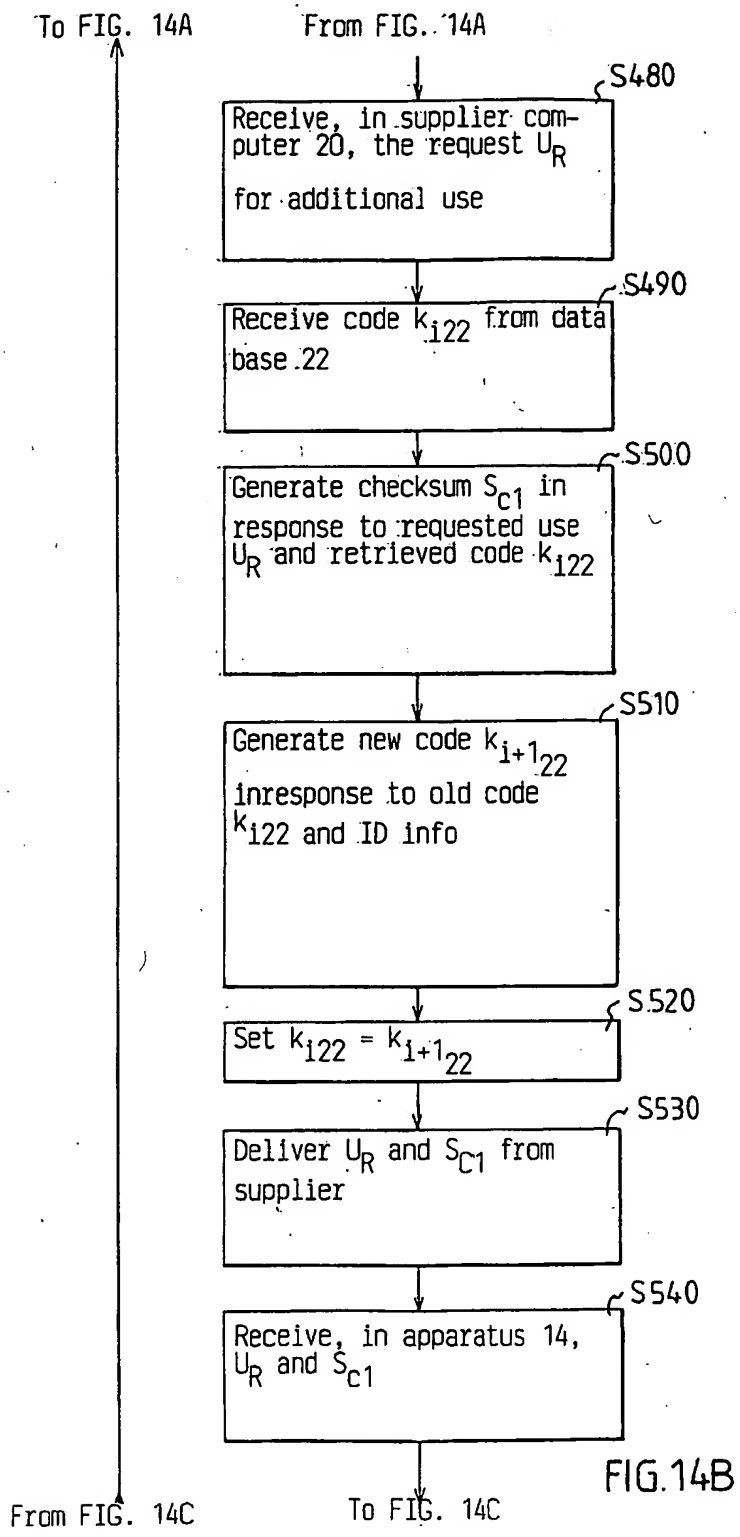
To FIG. 14A
From FIG. 14A
S480
Receive, in supplier computer 20, the request U_R for additional use
S490
Receive code k_{i22} from data base 22
S500
Generate checksum S_{C1} in response to requested use U_R and retrieved code k_{122}
S510
Generate new code $k_{i+1_{22}}$ inresponse to old code k_{i22} and ID info
S520
Set $k_{i22} = k_{i+1_{22}}$
S530
Deliver U_R and S_{C1} from supplier
S540
Receive, in apparatus 14, U_R and S_{C1}
From FIG. 14C
To FIG. 14C

FIG.14B

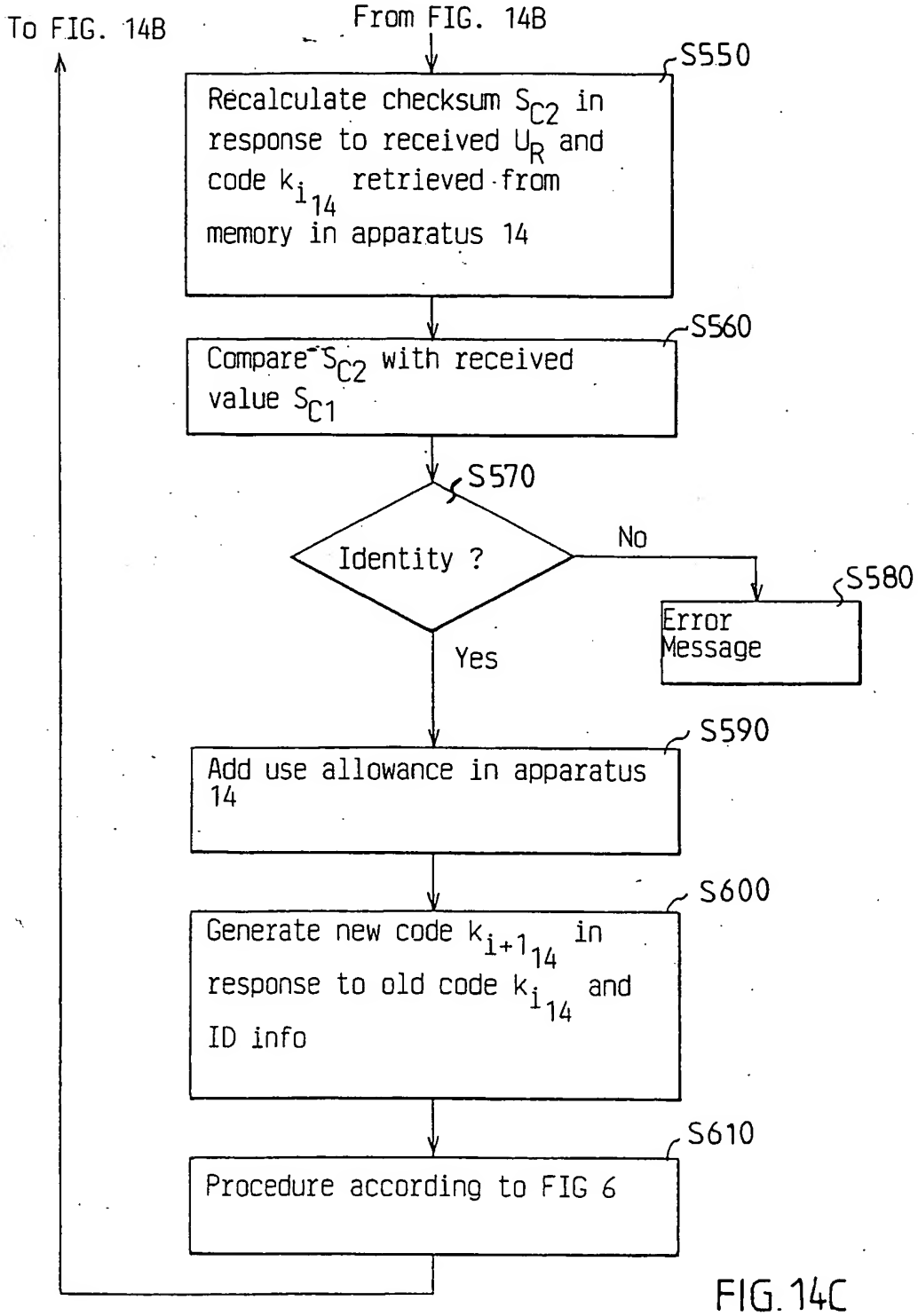
To FIG. 14B
From FIG. 14B
S550
Recalculate checksum S_{C2} in response to received U_R and code $k_{i_{14}}$ retrieved from memory in apparatus 14
S560
Compare S_{C2} with received value S_{C1}
S570
Identity ?
No
S580
Error Message
Yes
S590
Add use allowance in apparatus 14
S600
Generate new code $k_{i+1_{14}}$ in response to old code $k_{i_{14}}$ and ID info
S610
Procedure according to FIG 6

FIG. 14C

10/501545

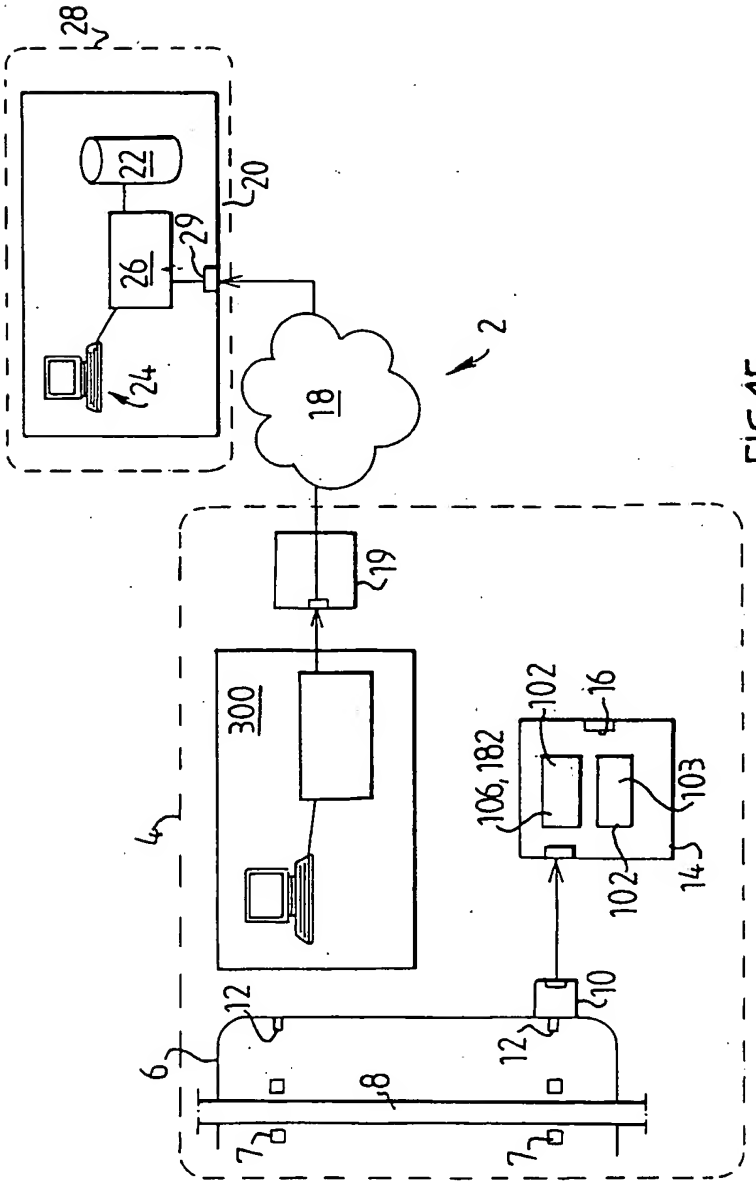

FIG.15